
Lectotypification and Epitypification of *Dracontium gigas* (Seemann) Engler (Araceae)

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ABSTRACT. No type was designated in the protologue of *Godwinia gigas* Seemann, the basionym of *Dracontium gigas* (Seemann) Engler. The only herbarium collection mentioned in the original description cannot be located, and the surviving original material consists of a plate with three distinct elements. One of these elements is here designated the lectotype of *Godwinia gigas*. Since neither the lectotype nor the other two elements on the plate are identifiable to species, the type is ambiguous and not of practical utility for the precise application of the name. The *Tokyo Code* provides a mechanism for unequivocally fixing the application of a name in cases where the holotype or lectotype does not suffice to do so. Article 9.7 permits the designation of an interpretative *epitype*, comprising an element considered representative by the monographer. Several herbarium collections were prepared from a cultivated plant collected by the author when *G. gigas* was described. One of these, a fertile specimen prepared by N. E. Brown, is here designated an epitype.

Dracontium gigas (Seemann) Engler was discovered by Berthold Seemann between the Javalí Gold Mine and the Quebrada de Las Lajas in the Chontales Mountains of Nicaragua in January 1869. Seemann collected a spadix and two living tubers. He preserved the spadix in spirit and deposited it at the British Museum; he sent the tubers to William Bull in Chelsea, England. In a letter to Bull in the *Gardeners' Chronicle* for 1869 (p. 220), Seemann described one of the plants he found in Nicaragua. Seemann (1869) published a Latin description of the plant under the name *Godwinia gigas*, in honor of George Godwin, an eminent architect and major supporter of many scientific activities in England at that time. He also included an English description and a plate with details of various organs (Fig. 1), but the taxon was mistakenly referred to "*B. gigas*." In 1879, Engler synonymized *Godwinia* with *Dracontium*, and made the combination *D. gigas* (Seemann) Engler.

One of the cultivated plants collected by Seemann from Nicaragua flowered for the first time at Bull's

establishment in December 1872, at which time a detailed drawing was made by W. Fitches (Hooker, 1873). Another drawing of the same inflorescence was made by W. G. Smith and published by M. T. Masters (1873), along with some measurements and observations of the plant. Both figures depict a fully opened inflorescence. No herbarium vouchers of this inflorescence were prepared, and only parts of the spadix were preserved in spirit. These spadix parts were later affixed to one of the sterile sheets collected from the same plant (*N. E. Brown s.n.*, 1878, K). Three years later Brown (*s.n.*, 1881, K, GH) prepared a second sterile collection from this plant. Apparently, the Royal Botanic Gardens obtained one of these plants from Bull before 1883, because a third sterile collection was prepared at Kew in 1883. Curiously, this collection is presently housed in the Gray Herbarium at Harvard University (*N. E. Brown s.n.*, 1883, GH). Bull's plant bloomed for the second time in 1884, and a fertile collection was then prepared (*N. E. Brown s.n.*, 1884, K). In 1889, a fertile collection, which is believed to be from the same plant, was prepared and housed in K. Finally, in 1901, the plant that had been collected by Seemann 38 years previously bloomed once again at Kew, and some details of it were studied by W. Watson (1901) and published with a photograph.

LECTOTYPIFICATION AND EPITYPIFICATION

In the protologue of *Godwinia gigas* Seemann, no type was designated. The only surviving original material is a plate, reproduced here as Figure 1, comprising three separate elements. In the following discussion, numbers in parentheses are those of the figures in the original plate. The leaf (1) was drawn by W. G. Smith from the live plant grown by William Bull and was obviously erroneous since the branching pattern of the middle section as depicted is unknown in the genus. The spathe and tuber (2, 3) were adapted from a sketch by Antonio Fairburn made in Nicaragua. The details of flowers (6–17) were drawn by H. Trimen from the spadix deposited at BM. This pickled spadix was the only herbarium



Figure 1. Reproduction of Seemann, 1869. J. Bot. 7: Tab. 96 and 97, f. 1. The leaf is designated here as lectotype of the name *Godwinia gigas* Seemann and consequently of *Dracontium gigas* (Seemann) Engler.

collection among the original material and is believed to be no longer extant (R. Vickery, pers. comm.).

The sketches of the spathe and tuber (2, 3) were probably made from a plant that Seemann had not seen. The spathe bears no resemblance to any known species of *Dracontium*, and the tuber, presumably from the same plant, is not unique to *Dracontium*. Thus it is conceivable that more than one taxon may be represented in the original plate. Since the leaf of *D. gigas* is identical to that of *D. pittieri*, the leaf (1) is inadequate to determine the species. The only useful character in the floral details is in

the styles (9, 10), which are almost as long as the tepals; this feature, however, is shared with *D. pittieri*, which is distinct from *D. gigas* by having a much longer peduncle, a much larger transparent area inside the spathe, and in various ultrastructural characters of the spathe. Thus, none of the three elements in the plate is identifiable to the species level; whether taken individually or together, they are ambiguous and useless for the precise application of the name *Dracontium gigas*. Nonetheless, the *International Code of Botanical Nomenclature* (Greuter et al., 1988, Articles 7.4 and 7.5) requires

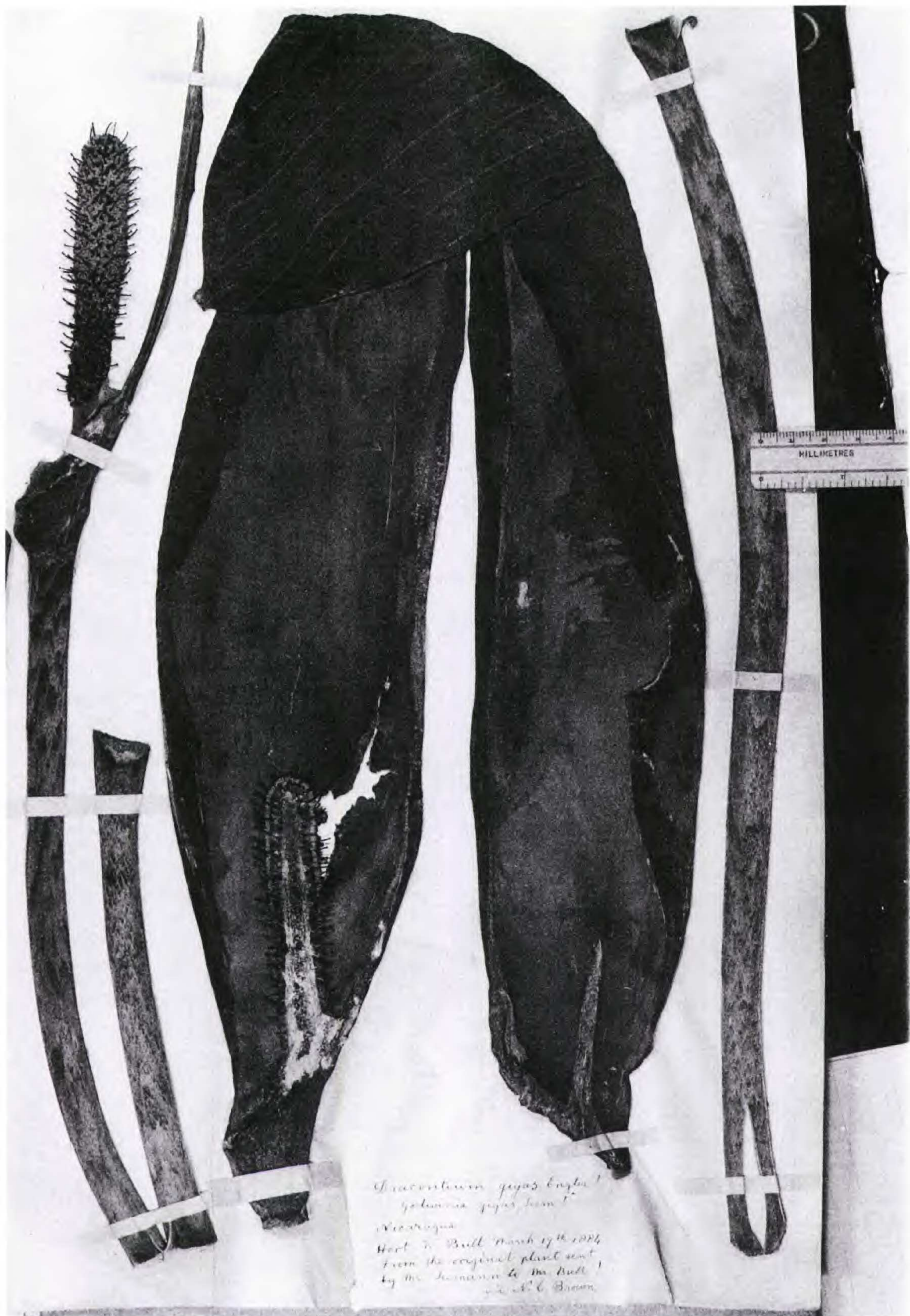


Figure 2. Epitype of *Dracontium gigas* (Seemann) Engler (*N. E. Brown s.n.*, 3/19/1884, K). Photo by Thomas B. Croat (262-14).

that a lectotype be chosen from the original material and precludes neotypification when such material is extant. Thus, a lectotype has to be chosen from among the three elements comprising Seemann's plate. Despite the branching error of the middle section, the leaf drawing (1) depicts adequate details and represents a distinctive leaf form, which at least narrows the field to two species in the genus. Thus,

the drawing of a leaf (1) is here selected as the lectotype for the name *Godwinia gigas*.

The most recent Code, the *Tokyo Code* (Greuter et al., 1994), provides a mechanism for unequivocally fixing the application of a name in cases, such as this, where the holotype or lectotype does not suffice to do so. Article 9.7 permits the designation of an interpretative type, called an "epitype," com-

prising an element considered representative by the monographer. Clearly, *Godwinia gigas* is a prime candidate for epitypification. From among the herbarium collections prepared from the cultivated plants that were collected by the original author when the species was described, the only fertile specimen (*N. E. Brown s.n.*, 3/19/1884, K) is here designated as the epitype of the name *Godwinia gigas* Seemann and consequently of *Dracontium gigas* (Seemann) Engler (Fig. 2).

Dracontium gigas (Seemann) Engler in DC., *Monogr. Phan.* 2: 284, 1889. *Godwinia gigas* Seemann, *J. Bot.* 7: 313–315. t. 96 & 97, 1869. LECTOTYPE: Figure 1 in *J. Bot.* 7: t. 96 and 97. 1869. EPITYPE: Cultivated plant in Royal Botanic Gardens, Kew, originally collected by Seemann between the Javalí Gold Mine and the Quebrada de Las Lajas, Chontales, Nicaragua, *N. E. Brown s.n.* 3/19/1884 (K).

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Literature Cited

- Engler, A. 1879. Araceae. In: A. P. De Candolle, *Monographiae Phanerogamarum*, II: 284–285. G. Masson, Paris.
- . 1889. Araceae. In: A. Engler & K. Prantl, *Die Natürlichen Pflanzenfamilien*, II (3): 124–125. Leipzig.
- . 1911. Araceae–Lasioideae. In: A. Engler, *Das Pflanzenreich* IV. 23C (Heft 48): 46–47.
- Greuter, W. G., F. R. Barrie, H. M. Burdet, W. G. Chaloner, V. Demoulin, D. L. Hawksworth, P. M. Jørgensen, D. H. Nicolson, P. C. Silva, R. P. Trehane & J. McNeill. Editors. 1994. *International Code of Botanical Nomenclature (The Tokyo Code)*, Adopted by the XVth International Botanical Congress, Yokohama, August–September, 1993.
- , H. M. Burdet, W. G. Chaloner, V. Demoulin, R. Grolle, D. L. Hawksworth, D. H. Nicolson, P. C. Silva, F. A. Stafleu, E. G. Voss & J. McNeill. Editors. 1988. *International Code of Botanical Nomenclature*, Adopted by the Fourteenth International Botanical Congress, Berlin, July–August 1987. *Regnum Veg.* 118: 7–8.
- Hooker, J. D. 1873. *Godwinia gigas*. *Bot. Mag.* 99: t. 6048.
- Macmillan, H. F. 1956. P. 131 in *Tropical Planting and Gardening*, 5th ed. Macmillan, London.
- Masters, M. T. 1873. *Arads. Gard. Chron.* 18: 72–73.
- Seemann, B. 1869. On the gigantic new aroidea from Nicaragua (*Godwinia gigas* Seemann). *J. Bot.* 7: 313–315.
- Watson, W. 1901. *Dracontium gigas*. *The Garden*, 1901: 241.

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